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HAN, QI

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	Application No. 09/464,076	Applicant(s) CRUICKSHANK, BRIAN
	Examiner Qi Han	Art Unit 2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-12 and 14-18_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _1-12, 14-18_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: .

DETAILED ACTION

1.   The request filed on 04/14/03 for a Continued Prosecution Application (CPA) under 37

CFR 1.53(d) based on parent Application No. 09464076 is acceptable and a CPA has been

established. An action on the CPA follows.

Response to Amendment

2.   The claims of the CPA is based on the last amendment after the final rejection, dated on

03/17/2003. In the last amendment, applicant amended claims 1 and 9-12, which are moot in

view of the new ground(s) of rejection.

Response to Arguments

3.   Applicant's arguments filed on 03/17/2003 have been fully considered.

On page 10, line 3, applicant cites that "Claim 1, 6, 9-12 and 14 have been amended".

However, claim 6 on page 4 and claim on page 7 appear to be "original"; the examiner will only

consider claims 1 and 9-12 as the amended claims, hereinafter.

In response the applicant's argument that "the office action on 01/15/2003 could not be

made final" because of "newly cited art" (amendment, page 10, section I), examiner respectfully

disagrees with the applicant. The cited reference(s) in the final action is merely further

evidence(s) of obviousness that is recited as official notice in the previous office action and

challenged by the applicant, so that the final rejection is proper.

Regarding the objections (amendment, page 11), applicant's insistently refuse to change

the phrase of "text to speech" to the suggested "text-to-speech", even though examiner explained

reason that is for avoiding potential ambiguity and for increasing searching efficiency, in last

office action. It is noted that to do so will benefit for both the office and all patent applicants, so

that the applicant's cooperation is requested.

4.   Regarding REJECTION UNDER 35 U.S. C. § 102":

In response to the applicant' argument (regarding claim 6, see amendment: page 12,

paragraphs 1-3) that "when dividing the text into words, Sharman dose not use a dictionary. As

result, this portion of Sharman does not anticipate adding a textual unit to a list when the textual

unit "corresponds to a stored textual unit in a vocabulary unit" as recited in Claim 6", the

examiner respectfully disagrees with applicant and has a different view of the prior art teachings.

In fact, as stated in the office action, Sharman discloses text tokenisation preprocessing 310 (Fig.

3) to split input text into tokens (words), word conversion 315 to implement special rules to map

lexical items into canonical word form (column 5, lines 3-17), which is the same or equivalent

process as stated in the applicant's specification (see page 7, paragraph 4). Now, applicant's

appears to suggest that when dividing the text into words it should use a dictionary, which is

contradictory with the specification and dose not specifically reflect in the claim. Further, it is

inherent processing nature that a dictionary can be used only after dividing the text to at least one

word, which is disclosed by Sharman (column 5, lines 18-40) as stated in the office action. In

addition, Sharman disclosed the text unit (including word) information used in different

processing stages (column 6, lines 61-67, and table 1), and the output buffer used when a

component produces several output units for each input unit that receives (column 7, lines 61-

67), which is inherently capable of storing the textural list as the claimed.

At this point, the examiner believes that the applicant's arguments are not persuasive.

Specification

5.   The disclosure is objected to because of the following informalities:

Changing phrase "text to speech engine (or system)" (for example on page 1, line 11 and

line 20) to "text-to-speech engine (or system)" in the application would be necessary for the

purpose of avoiding the potential ambiguity. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6.   Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Sharman.

Regarding **claim 6**, Sharman discloses a text to speech system. Sharman further

discloses a linguistic processor for various linguistic processes comprising: text tokenisation

preprocessing 310 (Fig. 3) to split input text into tokens (words), word conversion 315 to

implement special rules to map lexical items into canonical word form, such as convert numbers

to word strings and expand acronyms and abbreviations, syllabication 320 to look up and match

the words using a dictionary and to remove any possible prefix or suffix for a word and to brake

a word down into constituent syllables –syllabified word (equivalent to list of textual unit) for

further processing (column 5, lines 3-40). In addition, Sharman disclosed the text unit (including

word) information used in different process stages (column 6, lines 61-67, and table 1), and the

output buffer used when a component produces several output unit for each input unit that

receives (column 7, lines 61-67). This corresponds to the claimed "a method of pre-processing a

text file comprising: receiving a text file; parsing said text file into textual units, where each said

parsed textual unit is one of a word, a prefix or a suffix; and for each one of said parsed textual

units, if said one of said parsed textual units corresponds to a stored textual unit in a vocabulary

of textual units, adding said stored textual unit to a list."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 1-5, 9-15 and 18are rejected under 35 U.S.C. 103(a) as being unpatentable over

Sharman (USPN 5,774,854) in view of Hata et al. (USPN 5,878,393) hereinafter referenced as

Hata.

Regarding **claim 1**, Sharman discloses a text to speech system comprises:

    a.   a processing branch concerning with individual words, including component 320

(Fig. 3) using a dictionary look-up and/or removing any possible prefix or suffix (column

5, lines 18-27),

    b.   components 325,330 and 335 performing phonetic transcription in which the

syllabified word is broken down still further into its constituent phonemes, again using a

dictionary look-up table (column 5, lines 30-33), an acoustic processor 220 (Figs. 2 and

4) preparing acoustic data by using diphone library 420 (Fig.4) (column 6, lines 25-26),

    c.   the text unit (including word) information used in different processing stages

(column 6, lines 61-67, and table 1), and

    d.   output buffer 590 (Fig. 5) storing result of processing and checking output data

sufficiency, wherein the output buffer is used when a component produces several output

units for each input unit that receives (column 7, lines 54-67),

which corresponds to the claimed "receiving a list of textual units, where each said textual unit is

one of a word, a prefix or a suffix; for each unit comprising a word, locating an associated

speech sample in a memory; pending said associated speech sample to an output signal." But,

Sharman fails to explicitly disclose utilizing "speech sample" for the phonetic data on item b.

above, though he cites that a diphone library 420 (Fig. 4) effectively contains prerecorded

segments of diphones (column 6, line 25). However, the examiner contends that the concept of

providing speech sample as phonetic data was well known, as taught by Hata.

In the same field of endeavor, Hata discloses a high quality concatenative reading system.

Hata further discloses that the system has a dictionary of sampled sounds 40 (Fig. 1) (column 3,

42-45) and the individual speech samples represent discrete units of speech, such as phonemes or

words (column 3, line 26-31). Furthermore, Hata discloses multiple buffers for storing text and speech data in different processing stages, including input buffer 44 (Fig. 1), word list buffer 48, and sample list buffer 54 (column 5, lines 6-26), which is inherently capable of storing the textural list as the claimed.

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to combine Sharman and Hata, to specifically provide stored speech sample for generating sound data, as taught by Hata, for the purpose of increasing sound quality of the system.

Regarding **claim 2**, Sharman and Hata disclose everything claimed, as applied above (see claim 1). Sharman further suggests that: (i) at substring level, it is useful to include some back-up mechanism to be able to process words that are not in the dictionary (column 5, line 24); (ii) at phoneme level, it is again using a dictionary look-up table, augmented with general purpose rules for words not in the dictionary (column 5, line 34); which is equivalent to use "secondary text-to-speech engine". Further more, Sharman discloses that the phoneme data and other portion of data are sent to acoustic processor to produce output data stored in the output buffer 590 (Fig. 5) (column 8, line 23-24). This corresponds to the claimed "wherein one said textual unit in said list is indicated as not having an associated speech sample in memory and said method further comprises: passing said indicated textual unit to a secondary text to speech engine; receiving a speech sample converted from said indicated textual unit from said secondary text to speech engine; and appending said converted speech sample to said output signal."

Regarding **claim 3**, Sharman and Hata disclose everything claimed, as applied above (see claim 2). But, Sharman fails to explicitly disclose that "said secondary text-to-speech engine

comprises a phonetic text-to-speech engine based on a voice talent". However, the examiner

contends that the concept of utilizing a phonetic text-to-speech engine based on stored and

processed speech sample (herein equivalent to a voice talent) was well known, as taught by Hata.

Hata further discloses that the system has a dictionary of sampled sounds 40 (Fig. 1)

(column 3, 42-45) and the individual speech samples each represent discrete units of speech,

such as phonemes or words (column 3, line 26-31)

Therefore, it would have been obvious to one of ordinary skill in the art at time the

invention was made to modify Sharman by specifically providing a phonetic text-to-speech

engine based on stored and processed speech sample for a TTS engine, as taught by Hata, for the

purpose of increasing sound quality for the system.

Regarding **claim 4**, Sharman and Hata disclose everything claimed, as applied above (see

claim 1). Sharman also discloses that processing input text at the substring level is based on a

syllabified word (column 5, line 31), which inherently satisfies all limitation elements as claimed

"wherein a consecutive plurality of said textual units in said list represent a whole word, said

method further comprising: for each textual unit in said consecutive plurality of said textual

units, locating an associated speech sample in said memory; creating a speech unit by splicing

together said plurality of associated speech samples; and appending said speech unit to said

output signal."

Regarding **claim 5**, Sharman and Hata disclose everything claimed, as applied above (see

claim 4). Sharman further discloses components of identifying diphones 410 (Fig. 4), diphone

library 420 and diphone concatenation 415 for overcoming audible discontinuities (column 6,

lines 34-40), which corresponds to the claimed "after said splicing, processing said speech unit to

remove discontinuities."

Regarding **claim 9**, it discloses an apparatus, which corresponds to the method of

claim 1; the apparatus is obvious in that it simply provides structure for the functionality

found in claim 1.

Regarding **claim 10**, it discloses an apparatus, which corresponds to the method of

claim 1; the apparatus is obvious in that it simply provides structure for the functionality

found in claim 1. In addition, Sharman specifically discloses that the TTS system includes

two microprocessors (column 3, line 17), which corresponds to the claimed "a text to speech

converter comprising a processor operable to ...".

Regarding **claim 11**, it discloses an apparatus, which corresponds to the method of claim

1; the apparatus is obvious in that it simply provides structure for the functionality found in claim

1. In addition, Sharman specifically discloses that an arrangement is particularly suitable for a

workstation (equivalent to computer) equipped with an adapter card with its own DSP

(equivalent to processor) (column 3, line 21), which corresponds to the claimed "a computer

readable medium for providing program control to a processor, said processor included in a text

to speech converter, said computer readable medium adapting said processor to be operable to

...".

Regarding **claim 12**, it discloses an apparatus, which corresponds to a combination of the

method of claim 1 and the method of claim 6; the apparatus is obvious in that it simply provides

structure for the functionality found in claim 1 and claim 6.

Regarding **claim 13**, it is canceled.

Regarding **claim 14**, it discloses a data structure, which is used in and corresponds to the

method of claim 1; the data structure is obvious in that it simply provides a part of software

structure for the functionality found in claim 1.

Regarding **claim 15**, Sharman and Hata disclose everything claimed, as applied above

(see claim 14). But, Sharman and Hata fail to explicitly disclose a data structure "further

comprising a field for a phoneme that said textual unit starts with, and a field for a phoneme that

the textual unit ends with" as claimed. However, the examiner contends that the concept of

utilizing fields for a beginning phoneme and an ending phoneme in a data structure was well

known, as taught by Hata.

In the same field of endeavor, Hata discloses a high quality concatenative reading system.

Hata further discloses that a phonological feature table (an array type of data structure) 52 (Fig.

3), comprising fields of phonemes that a word may begin and end with (column 5, lines 14-31,

and column 7, lines 55-59).

Therefore, it would have been obvious to one of ordinary skill in the art at time the

invention was made to modify Sharman and Hata by specifically providing fields for a beginning

phoneme and an ending phoneme for existing data structure, as taught by Hata, for the purpose

of obtaining better sound quality.

Regarding **claim 18**, it depends on the claim 12; and it discloses an apparatus, which

corresponds to a combination of the method of claim 7 and the method of claim 16; the apparatus

is obvious in that it simply provides structure for the functionality found in claim 7 and claim 16.

8.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sharman in view

of Microsoft Press ("Computer Dictionary", page 298) hereinafter referenced as R1.

Regarding **claim 7**, Sharman discloses everything claimed, as applied above (see claim

6). Sharman particularly discloses that apart from using a dictionary look-up, "it is useful to

include some back-up mechanism to be able to process words that are not in the dictionary"

(column 5, lines 24-26), which is corresponding to the claimed "if said one of said parsed textual

units does not correspond to one of said stored textual units" and "as being out of vocabulary."

Sharman further cites that "the output unit represents the size of the text unit (e.g. word,

sentence, phoneme); for many stages this is accompanied by additional information for that unit

(e.g., duration, part of speech etc.)" (column 6, line 59 to column 7, line 2), which suggests that

the text unit may be different in each of processing stages. But, Sharman fails to explicitly

disclose to mark a text unit that does not match the one either in dictionary or by rule sets.

However, the examiner contends that the concept of marking a text unit data was well known, as

taught by R1.

R1 is a popular computer dictionary that gives common meaning and explanation of

words or phrases in computer related arts. R1 further discloses that one of the common

meanings of the word "mark" is "in applications and data storage, a symbol or other device used

to distinguish one item from others like it" (page 298, entry "mark"), so that when using "mark"

as a verb, it can be interpreted as an action to mark a symbol for certain data in a data storage,

such as used for "text unit", for distinguishing the data from other data.

Therefore, it would have been obvious to one of ordinary skill in the art at time the

invention was made to modify Sharman by specifically marking a text unit of the processed data,

as taught by R1, for the purpose of distinguishing the text unit that is not in the dictionary and

preparing for further processing stages, such as processing in a back-up mechanism, generating

phonemes, coping with prosodic information (Sharman, column 5, lines 25-26, column 5, lines

30-56 and column 5, lines 26).

Regarding **claim 16**, Sharman and R1 disclose everything claimed, as applied above (see

claim 7). Sharman further suggests that: (i) at substring level, it is useful to include some back-

up mechanism to be able to process words that are not in the dictionary (column 5, line 24); (ii)

at phoneme level, it is again using a dictionary look-up table, augmented with general purpose

rules for words not in the dictionary (column 5, line 34); which is equivalent to use "secondary

text to speech engine". Further more, Sharman discloses that the buffer may be used for storing

multi-stage input and output (column 7, lines 61-67) for different text units depending on the

process stage (column 6, line 61 to column 7, line 22), which inherently includes process stage(s)

in secondary TTS engine. This corresponds to the claimed "passing said marked textual unit to

a secondary text to speech engine, receiving a speech sample converted from said marked textual

unit from said secondary text to speech engine, and appending said converted speech sample to

said output signal."

9.   Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sharman in view

of R1 and further in view of O'Donnell ("programming for the world--a guide to

internationalization", ISBN 0-13-722190-8).

Regarding **claim 8**, Sharman and R1 disclose everything claimed, as applied above (see

claim 7). But, Sharman and R1 fail to disclose that "said marking comprises pre-pending a

character to said textual unit." However, the examiner contends that the concept of marking a

text unit by using a pre-pending character was well known, as taught by O'Donnell.

O'Donnell writes a book of "programming for the world", which discloses that appending

a character symbol "$" to a digit string for distinguishing monetary amount from normal number

(page 49, table 2.11).

Therefore, it would have been obvious to one of ordinary skill in the art at time the

invention was made to modify Sharman and R1 by specifically marking a text unit of the

processed data by adding a character, such as "$" or the like, in front of the text units, as taught

by O'Donnell, for the purpose of easily distinguishing the text units and preparing for further

processing.

Regarding **claim 17**, Sharman, R1 and O'Donnell disclose everything claimed, as applied

above (see claim 8). Sharman further suggests that: (i) at substring level, it is useful to include

some back-up mechanism to be able to process words that are not in the dictionary (column 5,

line 24); (ii) at phoneme level, it is again using a dictionary look-up table, augmented with

general purpose rules for words not in the dictionary (column 5, line 34); which is equivalent to

use "secondary text to speech engine". Further more, Sharman discloses that the buffer may be

used for storing multi-stage input and output (column 7, lines 61-67) for different text units

depending on the process stage (column 6, line 61 to column 7, line 22), which inherently

includes process stage(s) in secondary TTS engine. This corresponds to the claimed "passing

said marked textual unit to a secondary text to speech engine; receiving a speech sample

converted from said marked textual unit from said secondary text to speech engine; and

appending said converted speech sample to said output signal."

Conclusion

10.   Any response to this office action should be mailed to:
        Commissioner of Patents and Trademarks, Washington D.C. 20231
   or faxed to:
        (703)-872-9314
   Hand-delivered responses should be brought to:
        Crystal Park II, 2121 Crystal Drive, Arlington. VA. Sixth Floor (Receptionist).

        Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Qi Han whose telephone numbers is (703) 305-5631. The
examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. and
Friday from 8:00 a.m. to 12:00 a.m.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Marsha Banks-Harold, can be reached on (703) 305-4379.

        Any inquiry of a general nature of relating to the status of this application or proceeding
should be directed to the Technology Center 2600 Customer Service Office whose telephone
number is (703) 306-0377.

QH/qh
May 16, 2003

MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600